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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/638,319 | 08/14/2000 | A. Levent Cimecioglu | 1835D/A | 9573 |

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| EXAMINER |
|---|
| FORTUNA, JOSE A |

| ART UNIT | PAPER NUMBER |
|---|---|
| 1731 | 12 |

DATE MAILED: 02/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. 09/638,319 | Applicant(s) Cimecioglu et al. |
|---|---|---|
| | Examiner José A. Fortuna | Art Unit 1731 |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1) ☒ Responsive to communication(s) filed on *Feb 16, 2003*

2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

**Disposition of Claims**

4) ☒ Claim(s) *2-7, 10-16, 18-21, 23, and 26-28* is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideratio

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) *2-7, 10-16, 18-21, 23, and 26-28* is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement

**Application Papers**

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examine

If approved, corrected drawings are required in reply to this Office action.

12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 7
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

## DETAILED ACTION

### *Double Patenting*

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321© may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 2-7, 10-16, 18-21, 23 and 26-28 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-18 of U.S. Patent No. 6,228,126 B1 in view of Smith et al., US Patent No. 5,698,688, (Cited in Information Disclosure Statement of paper no. 2), or Solarek et al., US Patent No. 4,731,162, (cited in Information Disclosure Statement of paper no. 7). The only difference between the claims of the

present application and US Patent No. 6,228,126 B1 is that the present invention explicitly limits the claims as for improvement of the strengths of the pulp. However, both Solarek et al. and Smith et al., teach that modification of cellulose by introducing, oxidation, aldehyde groups in the cellulose increases the strength of the fibers/pulp. Note also that is also taught by U.S. Patent No. 6,228,126 B1 in the specification.

***Claim Rejections - 35 U.S.C. § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham* **v.** *John Deere Column.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor

and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103© and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2-7, 10-16, 18-21, 23 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al., US Patent No. 5,698,688 (Cited in Information Disclosure Statement of paper no.2) in view of Jewell et al., US Patent No. 6,379,494 B1 or Besemer et al., US Patent No. 6,331,619 B1, (Both cited in the Information Disclosure Statement of paper no. 7).

Regarding Claims 26-28, 2, 9, 16, 18-21 and 23, Smith et al. teach a paper made with aldehyde modified fibers, see abstract. Smith et al. teach also that the aldehyde groups increase the temporary strength of the fibers, see abstract. Even though Smith et al. are silent with respect to the number of moles of aldehydes in the fibers, Smith et al. teach that the presence of aldehyde groups is evidenced by an increase of wet strength of the paper formed from the modified fibers and that the degree of oxidation can be readily optimized for a given fiber weight to obtain desired degree of aldehyde groups in the fibers and that it would be desirable to avoid over oxidation so to control the formation of carboxylic acids groups in the fibers, see column 7, lines 8-20. Therefore, it is clear that optimizing the degree of aldehyde to the claimed degree would have bee obvious to one of ordinary skill in the art, in order to optimize the strength of the fibers. Smith et al. do not teach the use of nitroxyl compounds for the formation of aldehyde in the cellulose. However, both Jewell et al. and Besemer et al. teach that cellulose can be efficiently oxidated by

the use of compounds having nitroxyl groups, such as TEMPO and derivatives, see abstract. The advantages of using TEMPO or derivatives over the other oxidants are: a) a more controlled oxidation is obtained, i.e., the oxidation can be affected in the primary carbons of the cellulose, see Jewell et al., column 4, lines 26-51; b) the amount of oxidant, TEMPO, is low, because TEMPO is not irreversible consumed and can be regenerated by a secondary oxidant, see Jewell et al., column 4, lines 36-47; c) more efficient oxidation is obtained with less degradation of the cellulose, see Besemer et al. column 3, lines 26-61 Note that Jewell et al. teaches that the oxidation with TEMPO produces also aldehydes, see column 4, lines 57-61. Therefore, using nitroxyl compounds as taught by Jewell et al. and Besemer et al. to obtain the aldehydes groups in Smith et al. invention would have been obvious to one of ordinary skill in the art in order to obtain the advantages indicated above.

Regarding Claims 3-7 and 10-15, Smith et al. show in column 11, lines 3-24, paper having ratio of wet to dry strength greater than 20%. The paper inherently has compressible strength and resistance improvement over 5% as compared with corresponding unmodified pulp, since they have the same amount of aldehyde groups in the fibers. Regarding claim 15, Smith et al. teach also that any catalyst can be used in the reaction, see column 5, lines 59-62, and therefore the use of the claimed catalyst would have been obvious to one of ordinary skill in the art since they are well known in the art and it has been held that "[W]here two equivalents are interchangeable for their desired function, substitution would have been obvious and thus, express suggestion of desirability of the substitution of one for the other is unnecessary." *In re Fout* 675

F. 2d 297, 213 USPQ 532 (CCPA 1982); *In re Siebentritt*, 372 F.2d 566, 152 USPQ 618 (CCPA 1967).

6. Claims 2-7, 10-16, 18-21, 23 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. in view of Nooy et al. in "Selective Oxidation of Primary Alcohols by Nitroxyl. . .," cited in Information Disclosure Statement of paper no. 2.

Smith et al. invention has been previously discussed, see above. Smith et al. fail to teach the use of nitroxyl radicals as claimed. However, Nooy et al. teach that primary and secondary alcohols, such as the one in cellulose can be oxidized to aldehyde and/or carboxylate depending on the reactions conditions and the substrate, see page 8023 and teach in page 8027 that using inorganic solvents without water or with low concentration of water the reaction stops at the aldehyde stage. Therefore, the use of nitroxyl Radical containing compounds, such as TEMPO, to form aldehyde modified fibers such as the ones disclosed by Smith et al. would have been obvious to one of ordinary skill in the art, since one of ordinary skill in the art would have reasonable expectation of success if Nitroxyl Radical containing compounds are used. One of ordinary skill in the art would find that increasing the aldehyde content of fibers using Nitroxyl Radical is another viable alternative, in view of Nooy et al. teachings.

***Response to Arguments***

7. Applicant's arguments with respect to claims 2-7, 10-16, 18-21, 23 and 26-28 have been considered but are moot in view of the new ground(s) of rejection.

8. Applicant's arguments filed on February 16, 2003 regarding the 103 rejection over Smith et al. in view of Nooy et al. have been fully considered but they are not persuasive.

Applicants argue that the combination of references, Smith and Nooy, is improper because Nooy teaches the oxidation in an organic solvent and that one of ordinary skill in the art would not expect Applicants' oxidation, which does not requires the presence of an organic solvent, to produce aldehyde fibers.

This is not convincing because there is nothing in the claims that limits the formation of aldehyde in fibers in water or non-organic solvent. The Examiner recognizes that references cannot be arbitrarily combined and that there must be some reason why one skilled in the art would be motivated to make the proposed combination of primary and secondary references. *In re Nomiya*, 184 USPQ 607 (CCPA 1975). However, there is no requirement that a motivation to make the modification be expressly articulated. The test for combining references is what the combination of disclosures taken as a whole would suggest to one of ordinary skill in the art. *In re McLaughlin*, 170 USPQ 209 (CCPA 1971). **References are evaluated by what they suggest to one versed in the art, rather than by their specific disclosures**. *In re Bozek*, 163 USPQ 545 (CCPA) 1969.

***Conclusion***

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to José Fortuna, whose telephone number is (703)305-7498. The examiner can normally be reached on Monday-Friday from 9:30 A.M. to 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin, can be reached on (703)308-1164. The fax number for this group is (703)305-7115.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703)308-0661.

When filing a FAX in group 1730, please indicate in the Header (upper right) "Official" for papers that are to be entered into the file, and "Unofficial" for draft documents and other communication with the PTO that are not for entry into the file of the application. This will expedite processing of your papers.

José A. Fortuna
February 23, 2003

JOSÉ FORTUNA
PRIMARY EXAMINER
ART UNIT 1731